

Curriculum vitae

Gonzalo Martín Estavillo

ARC Centre of Excellence in Plant Energy Biology, BaMBi, Building 41,
The Australian National University, Canberra, ACT 0200, Australia.

P: 61 2 6125 2663; F: 612 6125 0313

e-mail: gonzalo.estavillo@anu.edu.au

Professional Experience

- 2006 **Post-Doctoral Research Associate**, ARC Centre of Excellence in Plant Energy Biology, School of Biochemistry and Molecular Biology, Building 41, The Australian National University, Canberra, Australia. Mentor: Dr. B. Pogson.

Education

- 2006 **Department of Botany, University of Florida, Gainesville (USA), Ph.D.**
Plant physiology and molecular biology major; GPA 4.0/4.0. Mentor: Dr. G. Bowes; "Characterization of the NADP-ME gene in a unique inducible C₄ system".
- 1996 **National University of Rosario, Rosario (Argentina), Licentiate in Biotechnology**
Plant molecular biology; grade 7,34/10. Mentor: Dr. C. S. Andreo; "Study of the expression regulation of the two isoforms of the NADP-malic enzyme in maize mesophyll and bundle sheath cells".

Languages: bilingual in Spanish

Computer Skills: DOS, MS Windows and related MS Office software; reference manager, design and web authoring programs; molecular biology software; plant imaging analyses, databases (MS Access).

Scientific Publications*

1. Etienne Delannoy, Monique Le Ret, Emmanuelle Faivre-Nitzchke, **Gonzalo Estavillo**, Marc Bergdol, Barry Pogson, Ian Small, Patrice Imbault and José M. Gualberto (2009) TADA is required for editing of the wobble nucleotide of chloroplast tRNA^{Arg}(ACG), which is essential for efficient chloroplast translation and photosynthetic functions. (submitted to *Plant Cell*) [9.65,0]
2. Etienne H. Meyer, Tiago Tomaz, Adam Carroll, **Gonzalo Estavillo**, Etienne Delannoy, Sandra Tanz, Ian D. Small, Barry Pogson and A. Harvey Millar (2009) Remodeled respiration in *ndusf4* with low phosphorylation efficiency suppresses Arabidopsis germination and growth and alters control of metabolism at night. (submitted to *Plant Physiology*) [6.38, 0]
3. Wilson, Pip B., **Estavillo, Gonzalo M.**, Field, Katie, Carrol, Adam, Pornsiriwong, Wannarat, Howell, Kate, Lake, Janice A., Millar, Harvey, Caemmerer, Susanne, Pogson, Barry J. (2009) The nucleotidase/phosphatase, SAL1, is a negative regulator of drought tolerance in Arabidopsis. *Plant Journal* (in press) [6.75, 0]
4. Giraud, E., Ho, L.H.M., Clifton, R., Carroll, A., **Estavillo, G.**, Tan, Y.-F., Howell, K.A., Ivanova, A., Pogson, B.J., Millar, A.H. and Whelan, J. (2008) The Absence of ALTERNATIVE OXIDASE1a in Arabidopsis Results in Acute Sensitivity to Combined Light and Drought Stress. *Plant Physiology*, **147**, 595-610. [6.38, 2]

5. **Estavillo, G.**, Rao, S., Reiskind, J. and Bowes, G. (2007) Characterization of the NADP malic enzyme gene family in the facultative, single-cell C₄ monocot *Hydrilla verticillata*. *Photosynthesis Research*, **94**, 43-57. [2.14, 4]
6. Bowes, G., Rao, S.K., **Estavillo, G.M.** and Reiskind, J.B. (2002) C₄ mechanisms in aquatic angiosperms: comparisons with terrestrial C₄ systems. *Functional Plant Biology*, **29**, 379-392. [2.37, 24]
7. **Estavillo GM**, Rao SK, Reiskind JB, Bowes G (2000) Molecular studies of an inducible C₄-type photosynthetic system: NADP-ME isoforms. *Plant Molecular Biology Reporter*, **18**, S21-23.

*Numbers in brackets indicate the journal impact factor and the number the publication was cited; updated: January 2009.

Manuscripts in preparation

8. **Estavillo G.M.**, Eberius M., Harris-Pascal D., Furbank R., Pogson B.J. (2008) Analysis of Arabidopsis growth using non-invasive imaging techniques.
9. **Estavillo, GM[†]**, Albrecht, V[†] (equal first authors), Pogson BJ (2009) Identifying Photoprotection Mutants in Arabidopsis thaliana. In Carpentier, R. (ed) *Photosynthesis Research Protocols*, Human Press (invited, due 19th June, 2009).

Book Chapters and Other Publications

1. Bowes G, Rao SK, Reiskind JB, **Estavillo GM**, Rao VS. 2008. *Hydrilla*: Retrofitting a C₃ leaf with a single-cell C₄ NADP-ME system. In: Sheehy JE, Mitchell PL, Hardy B, Eds. "Charting New Pathways to C₄ Rice. International Rice Research Institute, Los Baños (Philippines), and World Scientific. Pp 275-296.
2. Nathan Bazinet, Srinath K. Rao, Julia Reiskind, **Gonzalo M. Estavillo** and George Bowes (2003) Differential Expression Studies in *Hydrilla verticillata*. Journal of Undergraduate Research (Oct.) College of Liberal Arts and Sciences, University of Florida, URL: <http://www.clas.University of Florida.edu/CLAS/jur/1003/bazinetpaper.html>.

Abstracts and Posters Submitted to Scientific Meetings

1. **"Non-invasive analyses of plant morphology and function: towards the creation of a phenotypic database"** Furbank RT, Sirault XRR, Estavillo GM, Fallahi H, Pogson B, 1st International Plant Phenomics Symposium : from Gene to Form and Function, CSIRO, Canberra, Australia, 21-24/4/09.
2. **"Chloroplast – Nuclear signaling: a Tale of Phosphatases, Gene silencing and Histone Modifications"** B. Pogson, G. Estavillo, C. Cazzonelli, A. Cuttriss, P. Wilson, N. Pornsiriwong ARC Centre of Excellence in Plant Energy Biology, School of Biology, Australian National University, Poster presented at the "Plant Biology 2009", Annual ASPB Meeting, Honolulu, HI, USA , 7/18-22.
3. **"Sterol signaling in response to abiotic stresses in Arabidopsis"** P. Che, W. Zhou, G. Estavillo, B. Pogson, S.M. Smith, The ARC Centre of Excellence in Plant Energy Biology, The Australian National University and Western Australia University, Boden Conference in Plant Energy and Water Productivity, Canberra, Australia, 18-20/09/08.
4. **"The *alx8* mutation in SAL1, an inositol phosphatase, confers drought stress tolerance to Arabidopsis"** G.M. Estavillo, P. Wilson, D. Harris-Pascal, S. Graham, W. Pornsiriwong and B.J. Pogson (Poster), The ARC Centre of Excellence in Plant Energy Biology, The Australian National University, Canberra, Australia, Symposium The Genomics of Drought, ACPFG, Adelaide, Australia, 22-24/10/07.
5. **"C₄ Metabolism in C₃ Plants: Prospects and Progress"** George Bowes, Srinath K. Rao, Gonzalo M. Estavillo, and Julia B. Reiskind (Abstract), Department of Botany, University of Florida, Gainesville, FL 32611 USA, Research Frontiers with Rubisco, PS2007 Satellite Meeting, Rothamsted Research, Harpenden, UK, 20-21/07/07.

6. **“Imaging of Growth and Photosynthetic Performance for Arabidopsis thaliana functional genomics”** R.T. Furbank^{*1}, H. Fallahi^{1,2}, M.R. Badger², G. Estavillo³, B. Pogson³, I-L Lai⁴ and U. Schurr⁴, ¹CSIRO Plant Industry, GPO Box 1600 Canberra ACT 2601 AUSTRALIA; ²Research School of Biological Sciences, ANU, GPO Box 475 Canberra ACT 2601 AUSTRALIA; ³Dept Biochemistry and Molecular Biology, ANU Canberra ACT 0200 AUSTRALIA; ⁴Research Center Jülich, ICG-III Phytosphere, 52425 Jülich, Germany. (Poster) 14th International Congress on Photosynthesis, International Society for Photosynthesis Research, Glasgow, UK, 22-27/07/07.
7. **“The drought tolerant Arabidopsis *alx8* mutant has altered leaf morphology as well as changes in stress response signaling pathways under normal growth conditions and during abiotic stress”** P.B. Wilson¹, G. Estavillo¹, P. Crisp¹, K. Fields², J.B. Rossel¹, P. Mullineaux³ and B.J. Pogson¹; ¹The ARC Centre of Excellence in Plant Energy Biology, The Australian National University; Canberra, Australia; ²University of Sheffield, UK and ³Department of Biological Sciences, University of Essex, Colchester, UK. (Poster) 18th International Conference on Arabidopsis Research, Beijing, China, 20-23/06/07.
8. **“Comparison of Arabidopsis growth analysis using traditional methods versus imaging techniques”** G.M. Estavillo¹, D. Harris-Pascal¹, R. Furbank² and B.J. Pogson¹, ¹The ARC Centre of Excellence in Plant Energy Biology, The Australian National University and ²CSIRO Plant Industry, Canberra, Australia. (Poster) 18th International Conference on Arabidopsis Research, Beijing, China, 20-23/06/07.
9. **“Up-regulation of an NADP-ME isoform in a C₄ monocot lacking Kranz anatomy”** Estavillo GM, Bowes G. Department of Botany, University of Florida, Gainesville FL 32611 USA. (Poster) “CO₂ Fixation Assimilation in Plants: Genome to Biome”, 2005 Gordon Research Conference, The Centre Paul Langevin, Aussois, France, 9/11-16.
10. **“Single-cell C₄ photosynthesis in *Hydrilla*: unraveling key components for a transgenic C₄ rice plant”** G. Bowes, S. K. Rao, J. B. Reiskind, G. M. Estavillo; University of Florida, Gainesville FL 32611 USA. (Abstract) XVII International Botanical Congress, Vienna, Austria Center, 7/17-23, 2005.
11. **“Activity, expression and localization of NADP-ME isoforms in a C₄ system that lacks Kranz anatomy”** GM Estavillo, SK Rao, G Bowes, Department of Botany, University of Florida, Gainesville FL 32611 USA. (Poster) “Plant Biology 2004”, Annual ASPB Meeting, Lake Buena Vista, FL, USA, 7/24-28.
12. **“Characterization of NADP-ME in a C₄ system that lacks Kranz anatomy”** Gonzalo M. Estavillo, Srinath K. Rao, George Bowes, Department of Botany, University of Florida, Gainesville FL 32611 USA. Poster presented at the “Plant Biology 2003”, Annual ASPB Meeting, Honolulu, HI, USA , 7/25-30.
13. **“Could *Hydrilla*’s same-cell C₄ system enhance rice photosynthesis as global climate changes?”** Rao SK, Estavillo GM, Reiskind JB, Bowes G. Department of Botany, University of Florida, Gainesville FL 32611 USA. (Poster) “CO₂ Fixation & Metabolism in Green Plants”, 2002 Gordon Research Conference, Mount Holyoke College, S. Hadley, MA, USA , 8/11-16.
14. **“Molecular studies of an inducible C₄-like photosynthetic system: NADP-ME isoforms.”** Gonzalo M. Estavillo, Srinath K. Rao, Julia B. Reiskind, George Bowes Department of Botany, University of Florida, Gainesville FL 32611 USA. (Poster) 6th International Congress of Plant Molecular Biology 2000, Quebec, Canada, 06/00.
15. **“Effect of the nitrogen supply in the expression of the NADP-ME isozymes in maize plants.”** Verónica G. Maurino, María F. Drincovich, Gonzalo M. Estavillo and Carlos S. Andreo. CEFODI. (Abstract) VIII Pan-American Association for Biochemistry and Molecular Biology Congress , Pucón, Chile, 10/96.

Invited Seminars

1. **“A mutation in SAL1 confers tolerance and rescues ABA impaired phenotypes under drought”**, Gordon Research Conference on Salt & Water Stress in Plants, 7-12/09/08, Big Sky Resort, Big Sky, Montana, USA.

Other Presentations

1. **“Imaging-based technique to study plant growth analyses”**, Plant Phenomics Workshop: “Techniques for Molecular Biology and Ecophysiology”, ARC Centre for Plant Energy Biology, The Australian National University, 13/12/07, Canberra, Australia.
2. **“Study of drought tolerance in Arabidopsis mutants”**, ARC Centre for Plant Energy Biology, University of Western Australia, 04/20/07, Perth, Australia.
3. **“Isolation of photosynthetic genes and analysis of their expression using PCR and blot techniques”** Invited speaker, Biotechnology Techniques and Applications Course, ICBR, 6/20/05, University of Florida, USA.
4. **“Differential regulation of NADP-ME decarboxylases in a single-cell, C₄ angiosperm”**, ASPB Southern Section Meeting, 02/25-27/06, Daytona, USA.
5. **“Characterization of the NADP-ME genes in a facultative C₄ system without Kranz anatomy”** Botany Department Seminar, 4/15/05, University of Florida, USA.
6. **“NADP-ME Isoform 1 (*hvme1*) is Up Regulated in the C₄, Kranz-less Monocot *Hydrilla verticillata*”** Graduate Student Council Forum, 4/1/05, University of Florida, USA.

GenBank Submissions

The following full-length cDNAs were submitted to GeneBank:

1. AY594687: *Hydrilla verticillata*, cDNA encoding NADP-ME isoform 1 (leaf, *hvme1*).
2. AY594688: *Hydrilla verticillata*, cDNA encoding NADP-ME isoform 2 (leaf, *hvme2*).
3. AY594689: *Hydrilla verticillata*, cDNA encoding NADP-ME isoform 3 (leaf, *hvme3*).
4. DQ399705: *Hydrilla verticillata*, partial promoter and gene NADP-ME isoform 1 (leaf, *hvme1*).

Technical Skills

Molecular Biology: nucleic acids isolation and cloning; RT-PCR based techniques; DNA sequencing; Southern and northern blots with isotope or DIG-labeled probes; microbiology.

Protein Biochemistry: protein isolation; enzymatic assays; immunoprecipitation; recombinant protein production; two-dimensional IEF gels; blue native PAGE; western blots; affinity and size exclusion chromatography; antibody purification.

Plant Physiology: measurement of plant water potential (pressure chamber and psychometric thermocouple); bioassays (IP₃ and Ca²⁺ quantification); isolation of different plant cell types; protoplast transformation; plant cell fractionation; histochemical techniques; plant imaging techniques, gas exchange analyses; chlorophyll fluorescence measurements.

Fellowships and Special Training

- 2005 **NSF Genome Funded Proteomics Workshop and Symposium**, Donald Danforth Plant Science Center, Saint Louis, USA.
- 1998 **Basis in Biotechnology**, Graduate level molecular biology course, National University of San Martín, Buenos Aires, Argentina.
- Molecular diagnosis essays to detect early Cytomegalovirus infection in leukemic patients**, Private Laboratory of Hematology, Center of Hematology, Rosario, Argentina.
- 1997 **Molecular biology of the nitrogen fixation in *Rhizobium tropici***, Intercampus Program: granted by the Spanish Agency of International Cooperation (AECI), College of Pharmacy, University of Seville, Seville, Spain.
- 1996 **Training in transient expression of wheat genes: Wheat protoplast transformation; gene cloning**, Research assistantship granted by Helios Foundation, Center for Biochemical and Photosynthetic Studies (CEFOBI), National University of Rosario, Rosario, Argentina.
- 1993 **Training in Molecular Biology Techniques**, Assistantship in molecular biology

techniques, Center for Biochemical and Photosynthetic Studies (CEFOBI), National University of Rosario, Rosario, Argentina.

Academic Awards

- 2006 **Best Graduate Student Presentation (\$200)**, ASPB Southern Section Meeting, 02/25-27/06, Daytona, USA.
- 2005 **Outstanding Academic Achievement at the University of Florida**, CLAS, University of Florida, USA.
- 2000-03 **Outstanding Academic Achievement by International Student**, International Center, University of Florida, USA.
- 2002 **Threadgill Dissertation Fellowship (\$3,500)**, College of Liberal Arts and Sciences, University of Florida, USA.
- 2001 **Graduate Student Teaching Award 2000-2001 (\$800)**, Graduate School, University of Florida, USA.
- 2000 **Graduate Student of the Year 2000 for the Department of Botany**, University of Florida, USA.

Research Grants and Travel Awards

- 2008 **Major equipment grant (\$107,000)**, Pogson B, Millar, T; for purchase of imaging equipment, ANU,
- 2006 **MOP Research Grant (\$300)**, Graduate Student Council, University of Florida.
- 2005 **International Society of Photosynthesis Research (\$600)**, Photosynthesis Gordon Research Conference.
- 2003/04 **Plant Biology 2003 and 2004 (\$300)**, Annual Meeting of the American Society of Plant Physiologists.
- 2000/02/05 **College of Liberal Arts and Sciences (CLAS) (\$250)**, University of Florida.
- 2002 **Photosynthesis Gordon Research Conference (\$500)**.

Teaching Experience

Supervision

- 2009 Peter Crisp (Honours student), ANU
- 2008 Xiao Hui Chen (Honours student), ANU
- 2007 Daniel Harris-Pascal (3174), Wannanarang Pornsiriwong (PhD), ANU
- 2005 Nathan Bazinet, Nicole Davison, Gabriela Bhlom, University of Florida.

Developer

- 2004 **Developer and reviewer** for a web-based curriculum on biotechnology, University Center for Excellence in Teaching, University of Florida.
- 2001/02 **English-Spanish translator** of Science@ NASA web page.

Teaching

- 2008 **Invited lecturer and practical section developer** "Plants: Genes to Environment" (Biol 2121), BoZo, The Australian National University, Australia.
- 1999/01 **Teaching Assistant** "Introductory Plant Physiology and Molecular Biology Laboratory", Botany Department, University of Florida, USA. Developed curriculum, taught, graded and prepared teaching materials and experiments.
- 1992/94 **Teaching Assistant**, Biological Sciences Department, National University of Rosario, Argentina. Participated in the development and teaching of biology class for

biochemistry and biotechnology students.

Other Courses and Workshops

- 15-16/07/08 "Intellectual Property for the biological researcher's perspective", CPEB Workshops, ANU, Canberra, Australia
- 14/02/08 "Enhancing the quality of the experience of post-docs and early career researchers", Australian Academy of Science Workshop, Canberra, Australia
- 14/03/04 "Real Time PCR Workshop", ANU, Canberra, Australia.
- 02/03/04 "Microsoft Access - Intermediate", ANU, Canberra, Australia.
- 11/4/04 "Biotechnology Symposium", Florida Community College, Jacksonville, USA.
- 03/06/04 "Motivating students in college classroom", Workshop, UCET, University of Florida, USA.
- 08/02 "Web page Basics", Course, University of Florida, USA.
- 08-12/00 "Graduate Teaching Assistant Development Program", Workshop, University of Florida, USA.
- 06/99 "Basic Radiation Safety", Course, University of Florida, USA
- 04-06/98 "Applied Molecular Genetics", Graduate Course, National University of Rosario, Argentina
- 04-06/96 "Histological Techniques in Vegetal Tissues", Graduate Course, National University of Rosario, Argentina.
- 4-6/94 "Scuba Diving", Three month Scuba diving course. Rosario and Brasil.
- 04/94 "Achievements of Biotechnology", Workshop, University of Buenos Aires .
- 04/92 "Personal Computers", Workshop, National University of Rosario.
- 03-07/92 "Reflections on teaching at the initial levels", Workshop, National University of Rosario.
- 09/90 "Infective-contagious diseases course", Workshop, National University of Rosario.

Professional Memberships and Services

- 2008- Australian Society of Plant Scientists
- 2003- Member of The American Society of Plant Biologists.
- 2008- Sociedad de Biología de Rosario, Argentina
- 2008- Sociedad Argentina de Fisiología Vegetal, Argentina
- 2007 "Puente Austral", Canberra, Australia.
- 2005-2006 VP/Treasurer, PMCB Graduate Student Association, University of Florida, USA.
- 2004-2006 Graduate Student Council Botany Representative, University of Florida, USA.
- 2002 Cell Biologist Search Committee, Botany Department, University of Florida, USA.
- 2001 Gator Citrus Club, IFAS, University of Florida, USA.
- 2001 Member Curriculum Committee, Botany Department, University of Florida, USA.
- 2000 Graduate Student Liaison, Botany Department, University of Florida, USA.